

## REMARKS

### 35 U.S.C. § 103

#### Europe 890 456

Claims 1-2, 5, 10-12, 15-16 and 18-20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Europe 456 (EP 890456) in view of Iwamura et al (US 6,109,317) and Japan 207 (JP 6-135207). This rejection is respectfully traversed for the following reasons.

EP 456 is cited for teaching the use of a tetragon shaped blocks (4) separated by “steep slant groove segments” (2) inclined preferably at angles of 10-45° relative to the circumferential direction (col 3, lines 36-46), and having a relatively long circumferential component in comparison to the remaining tread blocks (col 6, lines 42-46). The steep slant groove segments (2) are disposed in the central region of the tire (col 2, lines 3-8), the central region of the tire having a width of 15-45% of the tread width. EP 456 further teaches that each side region of the tire is defined by “gentle slant groove segments (2) inclined at angles of 40-85° relative to the circumferential direction of the tire (col 5, lines 49-54).

As correctly noted in the rejection, EP 456 is silent about any desired or necessary length of the blocks (4) relative to the circumferential length of the tire tread footprint to achieve any desired tire characteristics. To compensate for this lack of teaching, Iwamura and Japan 207 are referenced.

In the rejection it is stated that Iwamura teaches forming the grooves with a length to exceed the footprint length, as illustrated in Figure 3, and that it would have been obvious to do so in the tread of EP 456 to improve water drainage – the unwritten presumption being that if the grooves of a modified EP 456 have such a length, the blocks would have a length per Applicants claim.

Regarding the tread footprint as illustrated in Figure 3, and relied upon the in the rejection, Iwamura specifically teaches that the grooves 2 are arranged “such that at least five, preferably six or more main grooves 2 always appear in the ground contact patch during running” (emphasis added; col 5, lines 31-35). Contrary to the rejection, Iwamura is silent as to an exact reason for this specific requirement; though one skilled in the art might argue that this is to achieve a desired water flow and wet performance. Thus, in applying Iwamura’s contact patch teachings to the tread of EP 456, the grooves of EP 456 would have to be more closely spaced, likely negating the teachings of EP 456 that the center blocks (4) must have a

length greater than the shoulder blocks (5), and failing to result a tread in having each block in the tread row with a circumferential length greater than the footprint length as recited in the present application.

Furthermore, there are no blocks in the central region of the tire of Iwamura. The central tread feature of the tire of Iwamura is a continuous rib structure, wherein the grooves 2 “start adjacent to the tire equator C with a small spacing therefrom” (see Figure 1 and col 3, lines 55-60) and have identified axially inner closed ends 2i (col 3, lines 65-67); thus, the circumferentially adjacent tread elements are connected to one another and do not form independent blocks such as those disclosed by EP 456 or as recited by Applicant. While Figure 3 of Iwamura has a double line at the center of the tread, Figure 3 is identified as “the ground contact patch of the tire in FIG. 1” and thus there is no central groove.

At best, Iwamura teaches that the spacing between adjacent grooves in the tread center should be distanced by a value LG equal to  $1.5 - 3.5 LR$ ; however, LR is the distance between circumferentially offset groove ends 2i on opposite sides of the tire equator C – not a tread structure or dimension that has any relevance to the tread of EP 456.

Structurally, the treads of EP 456 and the Iwamura are distinct enough from one another – EP 456 has single inclination grooves that cross the center line to form blocks while Iwamura has a center rib with multi-angled opposing inclination grooves - that one skilled in the art would not look to combine any specific teachings regarding the center grooves, and for the reasons pointed out above, the combination of references fails to yield a reasonable expectation of success. There are opposing teachings in the references regarding the groove and center tread structure and there is a lack of suggestion or motivation in either reference to modify or combine the references. Thus the rejection of the claim 1 of EP 456 as modified by Iwamura fails to establish *prima facie* obviousness under the Graham v. Deere standards. The use of Iwamura appears to be mere cherry picking of a reference in an attempt to have a rejection of the claims.

Alternatively, Japan 207, as illustrated in Figure 1, is noted as teaching steep slanted grooves having a length greater than the footprint length and it is stated that it would have been obvious to use the grooves of Japan 207 in the tread of EP 456 to improve water drainage – again, the unwritten presumption being that if the grooves of a modified EP 456 have such a length, the blocks would have a length per Applicants claim.

In Figure 1, Japan 207 teaches that the center rib block group is formed by a series of repeating blocks 121A-121E (and what appears to be two additional blocks that are the

inverse of 121A and 121B). The repeating series of blocks are located between inclined major grooves 26, inclined at 15° relative to the circumferential direction of the tread. Due to the inclination angle of the major grooves 26, the circumferential spacing between the grooves 26, and the width of the center rib block formed by the repeating block series (the tread center as measured between the circumferential grooves 19L and 19R is equal to approximately 53% of the tread width – this measurement being done in the same manner as done by EP 456, using Figure 2 of Japan 207), the major grooves 26 have a length extending greater than the footprint length. Japan 207 provides no specific teaching as why the groove must have a length greater than the footprint length. And Japan 207 certainly does not teach any desired relationship between a single block length and the footprint length as recited by Applicant. Regarding the noted benefit of “water drainage” as cited in the rejection, Japan 207 teaches that this benefit is achieved by inclining the edges 23L and 24L – not by the length or the inclination angle of the major groove 26. It is also noted that the number of major grooves 26 is ¼ the number of the transverse grooves in the side regions between blocks 21L and 21R.

However, to establish *prima facie* obviousness, there must be motivation to combine the teachings and a reasonable expectation of success. As noted above, Japan 207, the groove length is also a factor of the width of the center rib block group, the center rib block forming the center 53% of the tread. EP 456 teaches that the tread center has a maximum width of 45% of the tread width. To combine the teachings of Japan 207 to EP 456, one would have to increase the width of the tread center section of EP 456, but this is contrary to teachings of EP 456. One might also have to increase the spacing between the grooves of EP 456, but this is also contrary to the explicit teachings of EP 456 who desires a spacing of only one steeply slanted groove to every two gently slanted grooves. Thus to attempt to combine any additional teachings regarding the groove configuration to EP 456, based upon the teachings of Japan 207, would all be contrary to the teachings of EP 456 – thus there is no motivation to combine these references and no reasonable expectation of success.

Similar to EP 456, neither modifying reference speaks to a necessary relationship between the circumferential length of a block and the tread footprint length, as recited. Iwamura fails to disclose any blocks in the tread center and Japan 207 teaches a series of small blocks wherein none of the blocks have a length at least equal to the footprint length. Additionally, neither reference teaches that the groove length provides the benefit of improved water drainage as asserted in the rejection.

It is requested that this rejection be reconsidered and withdrawn for the reasons stated above.

Regarding claim 2, the claim has been clarified such that at every point on the tread, there is at least two of the tetragon blocks in the footprint. EP 456 does not show this – at the mid-length of each block, a lateral line drawn through the block passes only through the block itself.

Regarding claim 18, it is stated that it would have been obvious to provide the blocks with different lengths as it is conventional to pitch the tread blocks for noise. Pitching is conventional, however, the claim recites that “alternating blocks” have different lengths. This claim requires the use of two different lengths in a repeating pattern of ABABABAB. Such a pattern is not a conventional pitching sequence as it creates a repeating harmonic pattern.

Regarding the other rejected dependant claims, as the dependant claims incorporate the subject matter of claim 1, and the rejection fails to establish *prima facie* obviousness for claim 1, any rejection of the dependent claims based on EP 456 as modified by either Iwamura or Japan 207 also fails. Applicant does not concede the obviousness of any not specifically argued dependent claim.

As Europe 456 in view of Iwamura et al and Japan 207 fails to establish *prima facie* obviousness of the invention as recited in claims 1-2, 5, 10-12, 15-16 and 18-20, it is respectfully requested that the rejection be withdrawn.

Claims 17 and 18 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Europe 456 in view of Iwamura et al and Japan 207 as applied above and further in view of Nakagawa (US 6,102,093).

As Europe 456 in view of Iwamura and Japan 207 fails to anticipate or render the subject matter of claim 1 obvious as argued above, than any rejection of the dependent claims based on the modified Europe 456 also fails. Nakagawa also fails to disclose any necessary relationship between the circumferential length of a block and the tread footprint length, and fails to cure this deficiency of the modified Europe 456.

It is respectfully requested that the rejection be withdrawn.

#### Japan 11-5413

Claims 1-2, 7, 9, 11-12, 16, 18 and 20 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 413 (JP 11-5413) in view of Iwamura et al and Japan 207.

This rejection is respectfully traversed for the following reasons.

Japan 413 discloses a tire tread wherein the center portion of the tire is defined by a pair of circumferentially extending columns of tetragon shaped blocks 8. In each column, the blocks 8 are divided by an inclined lateral grooves 6 of 10°-45°. Japan 413 is silent about any relationship between the footprint length and the lateral groove length.

In this rejection, Iwamura is held to teach forming the central tread grooves with a length to exceed the footprint length as illustrated in Figure 3, and that it would have been obvious to do so in the tread of Japan 413 to improve water drainage – again, the unwritten presumption being that if the grooves of a modified Japan 413 have such a length, the blocks would have a length per Applicants claim.

Iwamura specifically teaches that the grooves 2 are arranged “such that at least five, preferably six or more main grooves 2 always appear in the ground contact patch during running” (emphasis added; col 5, lines 31-35). Again, contrary to the rejection, Iwamura is silent as to an exact reason for this specific requirement. To achieve the teachings of at least six or more central grooves in the tread footprint of Japan 413, the grooves of Japan 413 would have to be more closely spaced, likely negating the teachings of Japan 413 that the center blocks 8 must have a length at least twice the length of the shoulder blocks, and failing to result a tread in having each block in the tread row with a circumferential length greater than the footprint length as recited in the present application.

Similar to the combination in the first rejection using EP 456, structurally the treads of Japan 413 and Iwamura are distinct enough from one another – Japan 413 has a pair of block tread rows centered about a center circumferential groove, the grooves in the rows inclined in the same direction, while Iwamura has a center rib with multi-angled opposing inclination grooves - that one skilled in the art would not look to combine any specific teachings regarding the center grooves, and for the reasons pointed out above, the combination of references fails to yield a reasonable expectation of success. There are opposing teachings in the references regarding the groove and center tread structure and there is a lack of suggestion or motivation in either reference to modify or combine the references. Thus the rejection of the claim 1 of Japan 413 as modified by Iwamura fails to establish *prima facie* obviousness under the Graham v. Deere standards. The use of Iwamura appears to be mere cherry picking of a reference in an attempt to have a rejection of the claims.

Alternatively, Japan 207, as illustrated in Figure 1, is noted as teaching steep slanted grooves having a length greater than the footprint length and it is stated that it would have

been obvious to use the grooves of Japan 207 in the tread of EP 456 to improve water drainage – again, the unwritten presumption being that if the grooves of a modified EP 456 have such a length, the blocks would have a length per Applicants claim.

In Figure 1, Japan 207 teaches that the center rib block group is formed by a series of repeating blocks extending from one tread half to the opposing tread half. The blocks are located between inclined major grooves 26, inclined at 15° relative to the circumferential direction of the tread. Due to the inclination angle of the major grooves 26, the circumferential spacing between the grooves 26, and the width of the center rib block formed by the repeating block series, the major grooves 26 have a length extending greater than the footprint length. Japan 207 provides no specific teaching as why the groove must have a length greater than the footprint length. And Japan 207 certainly does not teach any desired relationship between a single block length and the footprint length as recited by Applicant. Regarding the noted benefit of “water drainage” as cited in the rejection, Japan 207 teaches that this benefit is achieved by inclining the edges 23L and 24L – not by the length or the inclination angle of the major groove 26.

To establish *prima facie* obviousness, there must be motivation to combine the references and a reasonable expectation of success. Japan 207 teaches that the slant grooves extend continuously from one tread side to the opposing tread side in a single tread row; unlike Japan 413 wherein there are two adjacent tread rows of blocks and the slant grooves of the two tread rows are *not* aligned and thus do not extend continuously from one tread side to the other tread side. Due to the different tread structures, one skilled in the art would not look to combine these teachings; this is especially so, as contrary to the rejection, Japan 207 provides no reasoning for the length of the grooves. Even where one motivated to attempt to combine any teachings of Japan 207 to Japan 413, it is uncertain that each individual block in each row would have a length greater than the footprint length – one skilled in the art is more likely to align the grooves in Japan 413 – and this does not inherently result in each tetragonal shaped block having the length recited in claims 1 and 20 – especially as Japan 207 does not teach that the blocks in the tread row must have such a length.

Regarding claim 2, the claim has been clarified such that at every point on the tread, there is at least two of the tetragon blocks in the footprint. Japan 413 does not show this – at the mid-length of each block, a lateral line drawn through the block passes only through the block itself.

Claim 7 has been included in this rejection, it being stated that Japan 413 teaches a

circumferential groove at the EP. Claim 7 is dependent upon claim 6, which has not been rejected in this rejection.

Regarding claim 18, it is stated that it would have been obvious to provide the blocks with different lengths as it is conventional to pitch the tread blocks for noise. Pitching is conventional, however, the claim recites that “alternating blocks” have different lengths. This claim requires the use of two different lengths in a repeating pattern of ABABABAB. Such a pattern is not a conventional pitching sequence as it creates a repeating harmonic pattern.

Regarding the other rejected dependant claims, as the dependant claims incorporate the subject matter of claim 1, and the rejection fails to establish *prima facie* obviousness for claim 1, any rejection of the dependent claims based on Japan 413 as modified by either Iwamura or Japan 207 also fails. Applicant does not concede the obviousness of any not specifically argued dependent claim.

As Japan 413 in view of Iwamura et al and Japan 207 fails to establish *prima facie* obviousness of the invention as recited in claims 1-2, 7, 9, 11-12, 16,18 and 20, it is respectfully requested that the rejection be withdrawn.

#### WIPO 99/17943

Claims 1-2, 6, 8-9, 11, 16, 18 and 20 have been rejected under 35 U.S.C. (a) as being unpatentable over WIPO in view of Boiocchi et al (US 5,964,266) and Iwamura et al. This is respectfully traversed for the following reasons.

WIPO discloses a directional tire tread wherein the tread has a more aggressive pattern in one rotational direction than in the other rotational direction. The tread has, on each side of the tread centerline, a tread row comprised of substantially tetragonal shaped blocks separated by inclined grooves. As appreciated in the rejection, WIPO is silent about two essential elements of the claim – the inclination angle of the grooves between the tetragonal shaped blocks and the circumferential length of the blocks relative to the footprint length.

To compensate for the lack of teaching regarding the inclination angle, Boiocchi is applied to the teachings of WIPO for the stated reason of teachings of employing a steeply slanted groove “for draining water.” However, the inclination angle of the transverse grooves of Boiocchi is never disclosed as being in the range of 15 to 25 degrees for such a stated reason. Iwamura is also applied for disclosing forming a plurality of steeply inclined central grooves in a central tread block. The inclination angle of the grooves is 5 to 15 degrees.

Even if it were obvious to one skilled in the art to apply such an incline to the lateral grooves of WIPO for the asserted purpose of water drainage, the modified tread of WIPO still fails to teach having have tread elements with a length greater than the footprint length of the tread. Again, Iwamura is applied for its showing in FIG. 3 – Iwamura teaching that at least six of the steeply inclined grooves must be in the footprint.

As with the prior rejections, to achieve the desired number of inclined grooves in the footprint, as taught by Iwamura, the grooves of WIPO would likely have to be more closely spaced and in such a more closely spaced grooved tread row, the tread of the modified WIPO will not inherently result in a tread row wherein each and every block has a length greater than the footprint length as recited. To establish *prima facie* obviousness, the combined references must have each and every claim element. In the present rejection, this necessary element of the rejection is not met – there is no certainty that the blocks have the necessary cited lengths of claims 1 and 20.

All of the references fail to teach any necessary relationship between the block length and the footprint length. WIPO is silent about such a relationship, Boiocchi is silent about such a relationship, and Iwamura has no such blocks and is only concerned about the number of grooves in the tread footprint, and apply those teachings do not guarantee Applicant's recited relationship.

Regarding claim 2, the claim has been clarified such that at every point on the tread, there is at least two of the tetragon blocks in the footprint. WIPO does not show this – at the mid-length of each block, a lateral line drawn through the block passes only through the block itself.

Regarding claim 18, it is stated that it would have been obvious to provide the blocks with different lengths as it is conventional to pitch the tread blocks for noise. Pitching is conventional, however, the claim recites that “alternating blocks” have different lengths. This claim requires the use of two different lengths in a repeating pattern of ABABABAB. Such a pattern is not a conventional pitching sequence as it creates a repeating harmonic pattern.

Regarding the other rejected dependant claims, as the dependant claims incorporate the subject matter of claim 1, and the rejection fails to establish *prima facie* obviousness for claim 1, any rejection of the dependent claims based on WIPO as modified above also fails. Applicant does not concede the obviousness of any not specifically argued dependent claim.

As WIPO in view of Boiocchi et al and Iwamura et al fails to establish *prima facie* obviousness of the invention as recited in claims 1-2, 6, 8-9, 11, 16, 18 and 20, it is



respectfully requested that the rejection be withdrawn.

Claims 3 and 4 have been rejected under 35 U.S.C. 103(a) as being unpatentable over WIPO in view of Boiocchi et al and Iwamura et al and further in view of Japan 308 (JP 2000-272308), German 574 (DE 614574) or Weber et al (US Des. 459290).

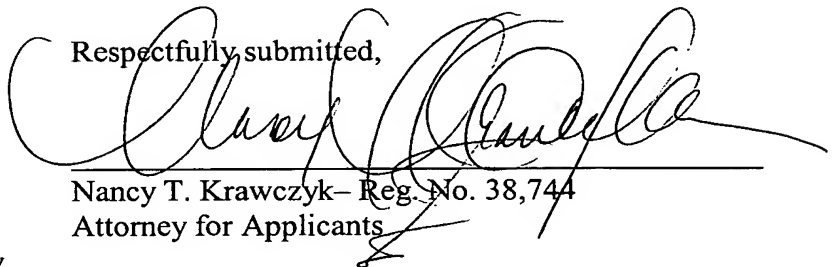
Claims 13 and 14 have been rejected under 35 U.S.C. 103(a) as being unpatentable over WIPO in view of Boiocchi et al and Iwamura et al and further in view of Japan 508 (JP 2-179508).

The rejections of claims 3, 4, 13, and 14 are based on the primary rejection of WIPO in view of Boiocchi et al and Iwamura et al. As argued above, this primary rejection fails to establish *prima facie* obviousness of claim 1, upon which these claims are dependent. Thus any rejection of the dependent claims based on the modified WIPO also fails. Applicant does not concede the obviousness of any of these claims. None of the additional cited art teaches that the blocks must have a length greater than the footprint length of the tire, and certainly as applied to the tread of WIPO, the teachings fail to yield a tread with such a mandatory dimension.

It is requested that these rejections be reconsidered and withdrawn.

In light of this amendment, all of the claims now pending in the subject patent application are allowable. Thus, the Examiner is respectfully requested to allow all pending claims.

Respectfully submitted,



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